

Chapter Twelve

Is There Metaphysical Reality & Necessity?

Abstract: Three key assumptions underlying the disciplines of Metaphysics, Epistemology, and Semantics are examined as practiced in contemporary analytic philosophy. First, it is questioned whether there is a 'metaphysical reality' in any intelligible, non-fictional sense. Second it is skeptically questioned whether the *a priori-a posteriori* distinction has legitimate value in explaining the epistemology of certain classes of assertion. A third concern is with the concept of 'necessity.' I argue that there are four philosophically interesting senses of 'necessity': causal, deductive, conceptual, and metaphysical. These senses are surveyed with a focus on 'metaphysical necessity.' I skeptically question whether metaphysical necessity is an insightful sense with fruitful applications. Saul Kripke's (1980) explanation of the epistemology of proper names and natural kind terms is critiqued.

In this chapter, I critique three assumptions underlying Metaphysics, Epistemology, and Semantics as practiced in contemporary analytic philosophy. First, I question whether there is a 'metaphysical reality' in any intelligible, non-fictional sense. Second, I question whether the *a priori-a posteriori* distinction has legitimate value in explaining the epistemology of certain classes of assertion. My third and primary concern is with the concept of 'necessity.' There are four basic interesting senses of 'necessity' found in ordinary language and philosophy: causal, deductive, conceptual, and metaphysical. I survey these senses and focus on 'metaphysical necessity.' I question whether metaphysical necessity is an insightful sense with fruitful applications. With a skeptical perspective to the notion of metaphysical necessity, I criticize Saul Kripke's (1980) explanation of the epistemology of proper names and natural kind terms which assumes a truth-theoretic possible-worlds semantics.

The methodology practiced here will be that of conceptual analysis where we will critically inspect our intuitive beliefs and semantic intentions in a number of epistemic contexts. The positive goal of this analysis is to measure (and hypothesize) speaker intentions (and speaker meaning) as best-explanation hypotheses about what 'information' (or 'propositional content') is conveyed by a speaker's utterance in various contexts. By using conceptual analysis, we can describe and explain our beliefs with respect to philosophical questions about 'existence,' 'identity,' 'kinds', and 'necessity.'

The three assumptions I seek to *dispel* are:

(#1) That descriptive metaphysics should seek information about 'reality.'

(#2) That so-called 'metaphysical necessity' in any of its senses (possible worlds, counter-factual analysis, or conceivability) is helpful with respect to important philosophical questions. It is argued here that the (*de dicto*) sense of 'necessity' associated with possible-worlds semantics *does nothing* to explain: 1) the function and the epistemology of proper names in ordinary discourse, 2) the epistemology of essential properties with respect to natural kind entities, and 3) the epistemology of deductive logic and mathematics.

(#3) That there is *a priori truth* (i.e., that there are knowable *non-linguistic truths* independent of the five senses). The *a priori- a posteriori* epistemic distinction is based upon the question, how is 'knowledge' possible? which responds to the skeptic who doubts that knowledge is possible. In chapter seven, when describing the nature of mathematics, it was argued that the 'self-evident' axioms of formal deductive and metaphysical systems are *prescriptions*, so that these axioms are neither true nor necessary. Mathematics was explained without recourse to apriority. In this chapter is suggested that *a priori* knowledge is best explained as 'true-in-a language' sentences, such as a theorem, tautology, analytic sentence, or knowing that the conclusion of a valid and sound argument is true. These sentences are 'necessarily' true, in virtue of deductive reasoning. They are *linguistic truths* (independent of the senses), and, so, they aren't knowable as *non-linguistic truths*.

Like the logical positivists, I am skeptical of many of the ongoing exotic theories in metaphysics. I contend that philosophy is best served by avoiding the overuse of the terms 'thing,'¹ 'object,' 'universal,' 'particular,' 'property,' 'aboutness,' 'abstract object,' 'meaning,' 'attitude,' 'synthetic,' 'experience,' 'linguistic reference,' 'singular term,' 'general term,' 'possible world,' 'rigid designator,' 'rationality,' 'fact,' 'normative,' 'information,' 'reliability,' 'sensitivity,' 'safety' and 'speech act'. Discussions of metaphysical 'necessity,' 'possibility,' 'impossibility,' and 'contingency' are misplaced and overemphasized. If we avoid excessive attention to these concepts, I believe that we can have a better explanation of the epistemology and semantics of natural and artificial language assertions and a more informative philosophy of language.²

¹ Instead of 'thing' I prefer 'entity.' John Lyons (1995, p. 297) states that at the limit of generality is 'entity' which can be used to refer to physical and non-physical objects and is derived from a Latin word which was deliberately created by philosophers to have exactly the degree of generality that it does have.

² The footnotes in this chapter provide textual evidence, and elaboration for claims made. They sometimes contain repetition and can be safely *ignored* on a first reading (or otherwise read for detail).

Metaphysics (Errantly) Seeks Information about 'Reality.'

Modern philosophers who are preoccupied with metaphysics tend to believe that they are investigating the fundamental structure of reality. Metaphysics is understood to be the most general of all disciplines seeking to identify the nature, constitution, and structure of *all that there is*.³ It seeks *a priori* 'conceptual truths.' Metaphysics is thought to be the conceptually necessary backdrop to every other discipline. It aspires for universality by identifying *the categories* that particular things belong to in virtue of their existence and identity conditions.⁴ It asks what categories of objects can be identified as constituting parts of reality. The word 'reality' may be interpreted as meaning 'all that exists.' The discipline seeks to develop a conceptual framework involving the notions of object, existence, identity, property, relation, necessity, similarity, dissimilarity, possible world, temporality, persistence, and causation, among others.

³ The term 'metaphysics' originates with the miscellaneous writings of Aristotle where he considers: (1) the 'categories' of being and substance, (2) the first causes (or principles) of things, (3) the notions of one and many, (4) the problem of change, and (5) the existence of mathematical objects. Aristotle's main concern was with what fundamentally exists and the categories of being. Aristotle's delineation of the 'categories of being' sought to find the highest or most general kinds under which things fall. The metaphysician was to identify the highest kinds of existents (in a hierarchical form) and the definitions of all substances. A prominent assumption held by Aristotle was that the proper methodology for obtaining definitions of 'substances' was by means of discovering their genus and differentia. Kinds of things were classified according to a hierarchy from very general identifying characteristics to less-general particular identifying characteristics. A complete definition proceeds from genus to species. Recent articles indicate that Aristotle had difficulties developing a consistent concept of what a 'definition' is, because he was unable to bring the notions of 'form,' 'matter,' 'essence,' and the method of 'definition by genus and differentia' into a systematic relationship. For more on this problem, see Cassidy (1967), Cohn (1981), Deslauriers (1990), Evans (1967), Le Blond (1979), Koterski (1980), and Witt (1989).

⁴ The following are some standard metaphysical questions: What objects exist and how are they identified? What is the status of concrete objects (particles, people, planets, toothpaste, etc.) compared to the status of so-called abstract objects (properties, numbers, necessity, sets, meanings, whiteness, etc.) that are not in space or time? Is 'existence' a property? The problem of ontology (i.e., of being, existence) is a problem of placement. Is everything that exists just physical (or material); or in addition, do non-spatiotemporal abstract things exist as a part of reality (and how are they identified)? For an object (or kind) to exist it seems that the object must have *essential properties* (in contrast to *accidental properties*) in order to have an identity. Are truths about identity in some way necessary? What is a property? Properties are said to be the attributes, features, traits, or aspects of things; and are located where they are instanced and depend on things that instantiate them. Some metaphysicians search for the identity (or persistence) conditions of different kinds of objects that make them come into being and go out of existence. The assumption that reality has a modal structure is popular in metaphysics: What are we talking about when we say, 'things might have been otherwise?' What is the status of counter-factual assertions? How can we know the truths of mathematics when they seem to require abstract objects? Do mathematical objects have a structure and properties independent of what a mathematician believes? What is the nature of mathematical entities (as universals) if they in fact exist? How can we talk about things that don't exist? Do fictional objects exist?

Metaphysicians seek a systematic account of the ways entities of different ontological categories are interrelated. In recent times, a complete catalogue of things that exist isn't always sought. Instead, there are various questions that involve the status of universals (e.g., whiteness), particulars (e.g., a person), and kinds of modality (e.g., necessity). It is believed that the theories of empirical science, by themselves, cannot offer a unified and clear picture of reality.⁵ Again, because metaphysics is not an empirical science, and since philosophers don't appeal to experimental or observational data in support of its claims, metaphysics is conceived as an *a priori* science.⁶

In the nineteenth century both Empiricists and Immanuel Kant (1724-1804) became critical of the metaphysics advanced by Spinoza (1632-1677) and Leibniz (1646-1716) that appeared to transcend the limits of human knowledge.⁷ Kant thought that

⁵ E.J. Lowe (2011) says that metaphysics is most perspicuously characterized as the science of essence that is primarily an *a priori* discipline concerned with revealing, through rational reflection and argument, the essences of entities, both actual and possible, with a view to articulating the fundamental structure of reality. Metaphysics accomplishes this task by identifying the ontological categories to which entities belong in virtue of their distinctive existence and identity conditions, thereby revealing the relationships of essential dependence on which entities of the same or different categories stand to one another and how modal truths concerning them are grounded. Hence, metaphysics may also be characterized as the science of the possible, charged with charting the domain of objective or real possibility, which is an indispensable prerequisite for the acquisition of any empirical knowledge of actuality (p. 99). Lowe states that metaphysics and empirical science complement each other (p. 102). Metaphysics is similar to mathematics and logic as being an *a priori* science about mind-independent reality. He says that it is meaningful to talk about 'reality as a whole' and about what exists. Metaphysics is an account of 'what there is' and 'how things are' in the most general terms possible. (Even if just 'physical matter' exists as ontologically fundamental, this doesn't imply that nothing more exists).

⁶ Cynthia MacDonald (2005) says that "metaphysics and empirical science differ in their methodologies in the way that they treat their subject matter. Whereas the method of arriving at knowledge employed in the empirical sciences is the empirical method-- the method of sensory observation and experimental test, *the method in metaphysics* for arriving at knowledge *is by means of the intellect*, or by understanding, thought, *and the application of logical rules* that govern transitions in such thought, *without appeal to sensory experience...* metaphysics arrives at knowledge in ways that are *justified a priori* (or independently of appeal to sensory experience)" (p. 4, italics added). MacDonald observes that because metaphysics is *a priori*, the propositions of metaphysics have traditionally been conceived as necessary rather than contingently true. If true at all, they concern not only what is the case, but what must be the case (p. 8). She says that metaphysics is not fundamentally about whether items of this kind or that kind exist; it is about what it is for items of this kind or that kind to have a nature, and what that nature might be (p. 22). What are the identity conditions (or essences) for individual things and/or kinds of things, such that without these necessary (essential) conditions, the object would no longer exist?

⁷ Aristotle's metaphysics was about a hierarchy of categories (e.g., substances) and about what fundamentally exists. He wasn't explicitly concerned with the concept of 'existence' itself. The rationalists of seventeenth and eighteenth centuries greatly expanded the discipline of metaphysics to include additional speculative questions about the mind-body problem, freedom of will, the nature of God and soul,

metaphysics should be self-reflective and delineate the structure of our thought about the world. According to Kant, metaphysical claims shouldn't be concerned with the structure of a mind-independent reality but should be about the fundamental *structure of our reasoned thought* about reality. Kant believed that the structure of our own thought was more (epistemically) accessible to us.⁸ On this view, critical metaphysics identifies the most general concepts (and their relationships) given our representation of the world and the presuppositions of their conceptual employment.⁹

Many philosophers agree with Kant that metaphysicians can only be satisfied to describe the structure of our thinking and conceptual schemes. Hilary Putnam (1983) represents this anti-realist stance by holding that metaphysics is a *descriptive* enterprise about our conceptual framework. Our conception and beliefs about the world are species relative. If our physical faculties (e.g., brain, perceptual system, stature) had been different, we would have a very different conception of the world. Putnam (2004) states that the idea that the world dictates a unique 'true' way of dividing the world into objects, situations, propositions, etc. is a piece of philosophical parochialism (p. 51).¹⁰ A metaphysics *cannot* seek information about an independent ontological reality. Many metaphysical debates are pseudo-disputes based upon defective, unanswerable questions.

the nature of time and space, and a hodgepodge of unrelated topics. Spinoza and Leibniz participated in an extravagant ontology; for example, positing the existence of monads.

⁸ Kant was a metaphysician who sought to make substantial claims about the 'reality' of human conceptual systems. The form (or structure) of our sense experience is in part determined by humans as receptors in our environment. Kant was concerned about how we can know 'objects.' He thought that with the empirical physical sciences (and ordinary perception) we can describe or explain physical states on the basis of sense experience. But in contrast, philosophy is an *a priori* discipline that reflects the non-empirical preconditions for our empirical knowledge of ordinary material objects. Kant maintained that the mind imposes its structural laws on reality and that there exists an immutable mental structure detected by pure reason. What makes a belief *a priori* is not how it is acquired, but rather how it can be verified. Metaphysics is *a priori* because it reflects the preconditions for experiencing ordinary objects. So, what we call an object of knowledge is not a thing external to and independent of our cognitive machinery, it is the application of our innate conceptual structures to the subjective states of our sensory faculties.

⁹ The task of identifying the most general ontology (and concepts) in our interpretation of the world turns out to be difficult in practice. Peter Strawson in *Individuals* (1959) sought to provide a metaphysics that describes the actual structure of our thought about the world. Strawson's attempt at explaining material bodies as basic particulars (with an empiricist epistemology) yielded a technical logical analysis.

¹⁰ Putnam's worldview that a truth-seeking anti-realist metaphysical theory should be a descriptive enterprise about the status of our *conceptual frameworks* is strongly endorsed here. The philosophy embodied here seeks to describe how we represent the world using intentions, concepts, and definitions.

In strong opposition, metaphysical realists continue to maintain that there are objective, truth-evaluable answers to basic questions of ontology ('what exists?'). I side with anti-realists, such as Putnam, in denying that there is metaphysical reality.¹¹

What is 'metaphysical necessity?' Are its senses (counter-factual analysis, conceivability, or possible worlds) helpful with respect to metaphysical questions?

The concept of 'necessity' has played a prominent role in both metaphysics and mathematical philosophy since ancient times. Pythagoras was a mathematician and philosopher concerned with necessity. Plato's theory of the Forms (and their necessity) assumes to examine abstract entities beyond space and time. For Aristotle, metaphysics examines 'being' qua 'being' so that *the most general features of reality* are comprehended by *abstracting* from specific features of particular objects. In developing a syllogistic logic, Aristotle was keenly interested in the relations of deductive necessity.

Following Leibniz in the seventeenth century and using an 'object-property-identity' terminology, many contemporary philosophers have become interested in 'possible worlds' necessity as having an explanatory role for logic and epistemology. Certain propositions are thought to be necessarily true, possibly true, contingently true, or necessarily false. These debates involve the status of 'sentences' under certain model theoretic conditions. In addition, metaphysical debates about 'necessity' are often analyzed in terms of 'counterfactuals' and 'conceivability.' In pursuing an understanding of the various concepts of necessity, I will initiate a conceptual analysis of the main senses found in the philosophical literature.¹²

A Conceptual Analysis of 'Necessity'

Let us summarize 'necessity' by means of a brief conceptual analysis of the central senses of the term. Some involve ordinary everyday thinking and others are conceived

¹¹ *Metaphysical realists* include D.M. Armstrong, George Bealer, Herman Cappelen, David Chalmers, Keith DeRose, Michael Devitt, Richard Feldman, Kit Fine, Allan Gibbard, Mark Heller, Jaegwon Kim, Saul Kripke, David Lewis, Michael Loux, E.J. Lowe, Cynthia McDonald, Derek Parfit, Alvin Plantinga, Theodore Sider, Scott Soames, Ernest Sosa, Robert Stalnaker, Peter van Inwagen, Timothy Williamson, and Linda Zagzebski, as well as metaethical, aesthetic and mathematical realists. *Anti-metaphysical realists* include John Austin, Rudolf Carnap, Eli Hirsch, Christopher Peacocke, Hilary Putnam, Richard Rorty, Gilbert Ryle, Alan Sidelle, Amie Thomasson, Stephen Yablo, and Ludwig Wittgenstein.

¹² The following brief *conceptual analysis* of 'necessity' may be contrasted to Alvin Plantinga's *metaphysical analysis* of 'necessity' in his *The Nature of Necessity* (1974).

by some factions of the analytic philosophical community. There appear to be five important basic senses of 'necessity': (1) causal law (physical) necessity, (2) deductive necessity (including premised entailments, theorems, tautologies, and analyticity), (3) the necessary condition(s) for an entity to be an extension under a group resemblance concept, or an extension under a fixed definiens concept, and (4) metaphysical necessity (explained in terms of possible worlds, counterfactuals, and conceivability).

Let us briefly summarize these *four kinds* of 'necessity' even though we will only be primarily concerned with metaphysical necessity (4A to 4C).¹³

(1A) Causal law (nomic) physical necessity is where physical event(s) follow from each other as a matter of (objective) *physical necessity*. Causation is a relation between physical states of affairs. A causal relation is composed of physical events upon antecedent states of affairs. Examples of assertions about causation: (1) The [fallen lit candle] [ignited nearby flammable materials] and thus caused [the fire]. (2) [The explosion] caused [the bridge collapse].^{14 15}

(1B) Theoretic definitions and necessary properties: As discussed in chapter six, a natural kind entity is presumed to have some objective condition(s) that are *necessary (essential)* and/or sufficient for its particular instantiation. Entities designated by a theoretic definition are assumed to have a self-unity, or an independent nature that allows them to be the subject of analysis (i.e., necessary and sufficient conditions).¹⁶

(2) Deductive Necessity: (1) Premised Valid Deductive Entailment is where a conclusion is *necessarily* true relative to and entailed by the 1) axioms, 2) vocabulary, 3) syntax, 4) inference rules and 5) the premises of a valid argument. **(2) Theorems** are the

¹³ There are at least two other senses not discussed here. One is 'pragmatic necessity' (e.g., 'it is *necessary* to flip this switch, in order to turn on the overhead lights in this room'). The second is the dubious concept of 'moral necessity' (e.g., 'it is *necessary* that persons do not operate motor vehicles while intoxicated').

¹⁴ Quantum physics has established that not every physical event has a cause. At least some causation may be irreducibly probabilistic in character. This is not a measure of our ignorance, but how things are.

¹⁵ There are many technical accounts about the nature of physical necessity and causation. For recent discussions, see Nathan Baron-Schmitt (2024) "Thing Causation" and Holger Andreas and Mario Gunther (2024) "A Regularity Theory of Causation."

¹⁶ Hume's belief that all senses of 'necessity' are mind-dependent is false. The physical and essential necessities asserted in senses 1a and 1b (causal laws, theoretic definitions) are objectively true or false.

basic formulas of sentential logical equivalence that are necessarily true relative to and entailed by the axioms, syntax, and inference rules of a formal language. **(3) Logical truths (i.e., tautologies)** are assertions that are necessarily true in virtue of their sentential form where truth-functional connectives are used. No matter what entities are systematically substituted as variables within a sentence, sentences having this form will remain true. **(4) Analytic truths** (discussed in chapter fourteen) are necessarily true relative to and entailed by 1) the fixed definiens of the vocabulary-syntax and 2) the grammar-syntax rules of a natural or artificial language.¹⁷

(3A) Conceptual Necessity: The Necessary Condition(s) for an entity to be an instance (or extension) under a Group Resemblance Concept is concerned with the specification of necessary condition(s) and/or a sufficient set of disjunctive conditions that a particular token instance of group resemblance concept must have in order to be consistent with the concept's standard use.¹⁸ Most concepts (nouns, verbs, adjectives and so on) are 'group resemblance concepts' or 'cluster concepts.' Their instances (or extensions) have a superficial resemblance or loose similarity. See chapter six for details.

(3B) Conceptual Necessity: The Necessary and Sufficient Conditions for an entity to be the proper extension of a Fixed Definiens Concept is where logicians, mathematicians, and philosophers seek consistency and knowledge about the relations of various fixed definiens concepts within a formal system. See chapter seven for details.

(4A) Metaphysical Counter-factual necessity/possibility: Some philosophers ask what properties, could an object have had, in contrast with properties it actually does

¹⁷ Two examples of **premised valid deductive entailment**: **(1)** (1) All horses are animals, (2) There is a horse in the field, and thus (3) There's an animal in the field. **(2)** (1) If *x* is a pig, then it has wings and flies, (2) *x* is a pig, and thus (3) *x* has wings and flies. Two examples of **theorems**: (1) in logic, the equivalence in DeMorgan's Rule, i.e. If $\sim (p \ \& \ q)$ is true, then so is $(\sim p \vee \sim q)$, and (2) in geometry, the sum of the interior angles of a triangle is 180 degrees. Two examples of **logical truths (i.e., tautologies)** are 'Abraham Lincoln is Abraham Lincoln' and 'it cannot be raining and not raining.' Two examples of **analytic sentences** include 'all bachelors are unmarried,' and 'a triangle has three sides.'

¹⁸ Paul Grice (1989) believes that conceptual necessity is the province of ordinary language philosophy based upon the intentions and beliefs about the use of a concept. He believes these factors are not empirical or contingent but require an *a priori* conceptual analysis (a sentential *de dicto* modality). In contrast, I believe that the examples of group resemblance definitions (e.g., 'chair,' 'game,' 'sports bar,' 'aesthetic experience,' 'proposition', and 'art') have definiens that are linguistic necessities determined by a conceptual analysis of a term's standard lexical use(s). For example, that alcohol and televisions are necessary properties for *x* to be a 'sports bar' reflects the term's standard use.

have. Counterfactual investigations involve talk about what properties **x** would have had, if certain circumstances were different. We all believe that some things could have been otherwise. What is sought is an account of the truth conditions of counterfactual conditionals (e.g., If it had been the case that **p**, then it would have been the case that **q**). For example: "the oak tree would have been taller, if it was growing in more fertile soil." The antecedent expresses a state of affairs which is contrary to fact. The auxiliary verbs are subjunctive in mood, expressing a state of unreality.¹⁹ This compares to conditionals that describe/indicate, e.g. "If the tree has shed its leaves, then winter has arrived."

(4B) Metaphysical- Conceivable necessity/possibility/inconceivability: For many theorists, it is intuitive that 'possibility' can be explained in terms of conceivability. If one can conceive of something's being so, then it is possible that the thing exists or could exist or that the proposition is possibly true. If a proposition is 'necessarily true' not only is it possible, it could not conceivably be false. For example: 'A mountain that is composed entirely of gold' is conceivable and possible in our world, but 'that a triangle has angles that total 360 degrees' is inconceivable (in any possible world).²⁰

¹⁹ Propositions about conceivable possibilities are typically expressed as subjunctive conditionals. The truth value of a subjunctive conditional is understood to be determined by the specific content of its components and is to some degree speculative. It is about what *would* be the case, if new or different factors were to come into consideration. The truth of such a conditional is judged by imagining circumstances that are close to the ways things actually stand, and how things would go in alternative circumstances.

²⁰ In Gendler & Hawthorne's anthology *Conceivability and Possibility* (2002) the editors introduce the concept of 'conceivability.' The authors say that it seems conceivability is a mental capacity that enables us to represent scenarios to ourselves using words or concepts (or sensory images, scenarios) that purport to involve actual or non-actual things in actual or non-actual configurations. The term 'conceive' shares a root with the term 'concept.' The terms 'envisage,' 'envision,' 'imagine,' 'picture,' 'visualize,' 'fantasize' are associated with 'conceivability.' When invited to consider whether something is possible, we engage in a deliberate effort to conceive of it. If we can conceive of it, it is *possible* (in a loose tentative sense). We may believe something *impossible* on the basis of an apparent inability to conceive of something. We might conceive of a golden mountain or a red square; but cannot conceive of a mountain without a valley or a round square. Among the questions asked: What sorts of possibility are there? What is it to conceive of something? When is conceivability a reliable guide to possibility? Does conception/introspection and imagination reveal to us *a priori* what is possible? The senses of logical, metaphysical, and nomological necessity are mentioned by the authors. Of concern are: 'how things might have been' or 'the ways it is possible for things to be.' The authors say that on the standard view, our ability to conceive of a scenario where **p** obtains is reckoned as constituting at least prima-facie reason for supposing that **p** is metaphysically possible. Conceivability seems to provide at least a *prima facie* guide to possibility; that something is conceivable is at least a good indicator that it is possible (pp. 1-6).

(4C) Metaphysical- Possible-worlds epistemic necessity/possibility: It is claimed that there is knowledge of (1) *necessary truths*, e.g., ' $2 + 2 = 4$,' which cannot fail to be true, and (2) *contingent truths*, e.g., 'Obama was the 44th President of the United States,' which, while true, might have been false. The truth of a sentence (or proposition) asserted in context is either contingent or necessary. This sort of necessity/possibility involves a commitment to the existence (by stipulation) of possible worlds in order to account for the epistemic status of modal assertions. The semantic properties of sentences (e.g., necessity, possibility, impossibility, contingency) are understood in terms of possible worlds and from axioms of metaphysics, logic, and set theory.

It is claimed that ordinary sentences are not used to merely talk about how things actually are, but they are also used to talk about how things (e.g., individual objects, ways of being) could have been different. The 'meaning' of a word or sentence (asserted in context) is understood as a referential concept and must be analyzed in terms of the notion of an extension. The referential force of a linguistic expression can extend beyond objects in the actual world to objects in other possible worlds. These two facets of 'meaning' indicate that the meaning of a non-logical expression is a set theoretic entity, a function of possible worlds to extensions. It is a function that assigns to each possible world *the extension the expression has* when we *use it* in talking about that world. Thus, singular terms (e.g., proper names, definite descriptions) have as their meaning a function from worlds to objects; the meaning of n-place predicate is a function from worlds to sets of ordered n-tuples; and the meaning of a declarative sentence is a function from worlds to truth values. A feature of propositions is that they can be said to be possible, necessary, impossible, or contingent. The concept of 'possible world' should shed light on what is called the 'nature' of modality. Again, a proposition is 'necessarily true' if it is true in all possible worlds, or in other words, a 'necessary proposition' is one that could not be false. A proposition is 'contingent' if it is true in some possible worlds, and false in others. A 'necessary falsehood' is true in no possible world.²¹

²¹ Michael Loux (1979) maintains that a variety of forms of discourse can be accommodated within the framework of possible worlds: discourse involving ascriptions of modality (both *de re* and *de dicto*), counterfactual discourse, discourse about meanings, and discourse about intentional abstract entities. Loux claims that possible worlds are part of the ontology of common sense.

Possible-world modal realism allows that there are essential properties of an object which are just those properties, that without them, the object could not be itself. A property possessed by a given object *x* is 'essential' only if *x* has this property in all possible worlds in which *x* exists. For example, the object Ludwig van Beethoven (1770-1824) was a person essentially, but only a piano player accidentally. Beethoven might not have played piano in another world (a contingent property), where he exists, but he is essentially a person (a necessary property). According to orthodoxy, 'metaphysical possibility' cannot be reduced to linguistic rules and conventions: it constitutes a mind-independent subject matter for thought and talk.²²

In order to critically address issues in Metaphysics, we will first need to briefly summarize the history of the philosophy of language.

Gottlob Frege: On Sense and Reference

In "On Sense and Reference" (1892) Frege (1848-1925) made the historically important distinction between a *sign*, a sign's *sense*, and a sign's *reference* (i.e., *the object that it refers to*, or its *meaning*).²³ A thought is composed of the systematic relation of signs in a well-formed sentence. Whether a *thought* (expressed as a complete sentence) is true or not depends upon how the world is. Frege thus analyzed a *thought* in terms of

²² Tomasz Bigja (2012) defends David Lewis's (1986) notion of modal realism: "The main strength of modal realism lies in its seriously reductive character...virtually all troublesome aspects of abstract objects can be reduced...to concrete things, and collections thereof. Take for instance the notion of a proposition...expressed by the sentence 'Paris is the capital of France' (which) is usually assumed to be an abstract, non-spatiotemporal object. But in modal realism, this proposition is simply identified with the set of all possible worlds in which Paris is indeed the capital of France. Thus, propositions are defined as sets of possible worlds. In this approach the fact that a given proposition P (which is a set of worlds) is true in a world *w* is concisely expressed as the statement '*w* is an element of P.' A slightly more complex reduction is also possible in the case of properties. A property of, let's say, being green, can be defined as the function which assigns to each possible world the set of all its green things. This definition has a clear advantage over the identification of properties with sets of objects in the actual world, because it enables to differentiate two distinct properties which only happen to be co-extensional (which apply to the same objects in the actual world). Thus, the property of having a heart and the property of having kidneys are two different properties, because there are possible worlds in which organisms equipped with hearts don't have kidneys" (p. 51).

²³ Frege introduced the concept of 'sense' as a technical term explaining how a linguistic entity (in a context) can attach to a referent by the mode of presentation. For example, in arithmetic '5 x 3' and '20 - 5' are two mathematical linguistic expressions that in their mode of presentation refer to 15. Frege believed that the sense of a sign (or sentence) was objective and can be grasped by an individual in a context.

sign, sense, referent/object/meaning, and truth-value.²⁴ Frege was concerned about the epistemology of identity statements $a = b$, where a and b are, in fact, the same object of one's thought. How can sentences of the form $a = b$ be informative, since it is an *a priori* truth that every object is identical with itself? Frege answered that a sign/name used in a speaker's context 'picks out' one particular object (its referent), but also carries a certain meaning (its sense). This explains how two names having different senses will refer to the same object, and how identity sentences can be informative.

For Frege and contemporary logicians, it is assumed that linguistic expressions (e.g., sentences, phrases, and words including proper names) are written marks (or sounds, or tactile expressions) that possess 'semantic values' (or 'semantic properties') whereby a linguistic expression can *mean* (or refer to) something when used in a context. When a speaker asserts a sentence, the sentence is composed of linguistic expressions that have meanings in a well-formed sentence. It is assumed that the linguistic marks, sounds, and tactile sensations (as physical entities used in a context) *take on a meaning*.²⁵

One doesn't understand the meaning of a word in isolation, but only in the context of a sentence. For example, a speaker's *linguistic expression* (e.g., the proper names 'Aristotle,' 'Hesperus') will *mean* something (e.g., a person, a planet) only when used in context. At the level of extension, 'singular terms' (i.e., proper names, definite descriptions, and natural kind terms) *refer* to objects; 'general terms' (i.e., predicates) *refer* to functional concepts (i.e., the mapping of intensions to extensions), and sentences *refer* to truth-values.²⁶ Frege maintained that *words do not refer* to psychological ideas

²⁴ According to Frege, thoughts are shared and communicated between individuals. The thought expressed by a sentence is non-spatial, a-temporal, and imperceptible but yet 'objective.' The meaning of a sentence is its truth-value; its sense is the 'thought' or 'proposition' it expresses. 'Truth' is a *property* of sentences. Whether a *sentence* is true is determined by the sense and references of its constituent terms (in a context).

²⁵ William G. Lycan (2008) says "Some strings of marks or noises in the air are just strings of marks or noises in the air, whereas others-- particularly whole sentences-- are meaningful. What is the difference? Perhaps this is the basic question for the theory of meaning" (p. 65). Michael Morris (2007) asks "What is it for words to have meaning? What is the meaning of words?" He states that "language is a system of signs which we use to communicate with each other. *The signs* which make up language *get their meaning* from our associating them with the thoughts we want to express" (p. 1, italics added).

²⁶ A 'singular term' is any word or phrase that (purportedly) refers to some one thing. In contrast to 'singular terms' (and their objects), the semantic value of a predicate (or 'general term') is a function: e.g., 'x is a musician' or 'y is even.' When a proper name is substituted (e.g., Beethoven, number 4) is substituted

(e.g., concepts, or definitions) because different people can associate different ideas with the same word. Instead, words and sentences have meaning, and 'thoughts' are expressed as public objects, and are apprehended by different thinkers.

In sum, Frege was concerned about how proper names (as singular terms) contribute to the meanings of sentences. He believed that a proper name when used in a sentence refers to its object (the bearer of a proper name) by having a 'sense' (i.e., a series of definite descriptions individuating the named entity). Frege believed, as a true axiom, that no object has the concept of not being identical with itself. Frege's work provided precise axioms, inference rules, theorems, and definitions with the aim of establishing gap-free proofs in what is now known as a 'formal system.'²⁷

Bertrand Russell: On Meaning & Denotation

Bertrand Russell (1872-1970) was suspicious of Frege's introduction of the notion of 'sense.' In "On Denoting" (1905) Russell uses the term 'meaning' instead of Fregean 'sense.' Russell shared Frege's metaphysical concerns about the informativeness of identity statements, the status of bearerless fictional names, and substitutivity of proper names in belief contexts. Russell asked how sentences such as 'The present King of France is bald' could be meaningful, when there exists no present King of France. Similarly, he was concerned with sentences that assert the nonexistence of an entity (e.g., 'Santa Claus does not exist'). Russell was especially interested in 'definite descriptions' which are phrases of the form 'the so-and-so' that he didn't think Frege explained well.²⁸

respectively in these functions, they have the value of being 'true.' The name Beethoven refers to a person who was a musician and the numeral 4 stands for the number 4. Singular terms have objects that they refer to, and predicates contribute to the truth/falsity of a sentence depending upon the singular terms inserted. The semantics of a syntactically well-formed sentence reveals how its constituent parts function (i.e., singular terms, general terms, connectives, quantifiers) for a sentence to have a truth value.

²⁷ For Frege, in a formal language, a word's 'definition' should give the *explicit* meaning, (i.e., sense, intension, definiens) to fix its denotation (i.e., to precisely denote its extensions). He thought that natural languages were imperfect representational systems where some of its expressions had no referent. Natural languages also have predicates that are vague (e.g., 'is bald') where there are borderline cases in appropriate extension. Nonetheless, Frege thought natural languages are capable of being represented to some extent by the mechanics of a formal semantics.

²⁸ Details: Concerning the semantics of the assertion 'The present King of France is bald,' Frege believed that this sentence is neither true nor false because the definite description 'the present King of France'

Singular Terms, General Terms, Reference, and Meaning

With this summary of some of the issues about linguistic meaning and the underlying metaphysics, we notice a special concern with linguistic expressions called *singular terms* that are said to somehow *refer* to particular objects. Singular terms include 1) proper names, 2) singular demonstrative pronouns ('this' and 'that'), 3) singular personal and impersonal pronouns and indexicals ('he,' 'she,' 'I,' 'you,' 'it'), 4) definite descriptions (e.g., 'the table,' 'the King of France'), and 5) natural kinds (e.g., water). In contrast, so-called *general terms* (e.g., 'brown,' 'loud,' 'dog,' 'heavy') are applied to many things. This distinction of singular terms and general terms reflects historical metaphysical concerns about 'particulars' and 'universals,' and 'objects' and 'predicates.' Frege and Russell are interested in providing an account of how proper names succeed in referring to objects, and how proper names contribute to sentence meaning. Frege uses definite descriptions to explain the senses of proper names and Russell claimed that the meanings of proper names were equivalent to (or abbreviate) the descriptions associated with those names by a speaker. Frege and Russell suggest that proper names are *equivalent in meaning* to definite descriptions, and the referent of a proper name can be uniquely determined by a series of associated definite descriptions.

In an article entitled 'Proper Names' (1958), John Searle followed Frege and Russell in suggesting that proper names are normally associated with (or designated by) a cluster of definite descriptions. For example, the name 'Aristotle' is associated with the descriptive cluster of 'being a famous Greek philosopher,' 'the founder of the Lyceum,' 'teacher of Alexander the Great,' and 'a pupil of Plato.' In a context where 'Aristotle' is used, if the speaker and audience associate the name 'Aristotle' with some partial cluster

(which functions like a proper name) has no referent. In comparison, Alexius Meinong (1853-1920) suggested that 'the King of France' does refer to an object, but to a non-existent one. The King of France, although not existing, *subsists*, according to Meinong. Russell thought these explanations were unacceptable. Russell's answer to this problem was to advance the theory that we should not take the grammatical form of a sentence as a guide to its logical form. Russell analyzed the sentence 'The present King of France is bald' as being of three parts: (i) there is at least one King of France, (ii) There is at most one King of France, and (iii) Anything which is a King of France is also bald. Without going into further detail, Russell treated the problem of bearerless names as disguised descriptions, the same as ordinary proper names. For Russell, proper names were abbreviations for descriptions. With respect to identity assertions involving proper names such as 'Hesperus' and 'Phosphorus' these likewise should be treated as a relation between definite descriptions. With an accompanying epistemology, Russell went so far as to claim that the only 'genuine proper names' are demonstrative expressions such as 'this' or 'that.'

of these four descriptions, then the name is understood and the reference to an object (i.e., a person) is made. There is no unique set of descriptions associated with a name for the whole community, because individual persons' knowledge about a referent will vary. This is called the 'description theory' of proper name reference. Philosophers generally accepted the 'description theory' of proper names for most of the twentieth century as variously explained by Frege, Russell, and Searle.

Kripke: A Possible-Worlds Perspective of Metaphysics and Semantics

It was not until Saul Kripke proposed a radically new perspective about proper names with a series of lectures at Princeton University in January 1970 that opinions changed. Published in 1980, Kripke's book *Naming and Necessity* is widely influential. Kripke's theory of 'proper names' isn't a systematic theory about how proper names work, but it is a loose 'picture' of how names must function, given some intuitive metaphysical, epistemic, and semantic distinctions. Kripke provides a causal-historical picture of how proper names (and names in general) come into use and how the historical use of a name allows the foundation for successful 'linguistic reference' to individual objects and natural kind objects. He seeks to explain (1) the role of proper names and natural kind terms in ordinary discourse, (2) the *a priori* necessity of identity statements, and (3) the nature of modal assertions. He wants to (a) show that his 'historical-causal-direct reference' theory of proper names is superior to the Frege-Russell 'description theory' (b) elaborate upon 'natural kind terms' as recently discussed by W.V.O. Quine and Putnam, (c) solve some Fregean puzzles about meaning, and (4) criticize the 'identity theory' of mind.²⁹

Kripke sharply distinguishes between the concept of an *a priori* proposition as an epistemological distinction, and the concepts of 'contingent' and 'necessary' truths as a metaphysical (or ontological) distinction. Metaphysics is conceived to describe what we know *must* exist; it describes the constitution and structure of reality (about how things must be, independent of what we think). Kripke adopts a 'possible world' semantics most notably used by Leibniz. Leibniz believed that necessary truths are those propositions

²⁹ Kripke argues against the identification of mental entities with their physical manifestations (e.g., that 'sensations' are 'specific neural events'). We will not discuss Kripke's philosophy of mind concerns here.

which are true in all possible worlds. For Kripke, a possible world is a possible world-state; a way that everything could have been. It is, in effect, a maximal property that the universe could have had. One alleged benefit of the possible-worlds theory is that it provides an explanation of the necessity of the truths of mathematics (e.g., $141678 + 639465 = 781143$ is true in all possible worlds).³⁰

Kripke fashions his metaphysical, linguistic, and epistemic picture with the introduction of the concept of a 'rigid designator' as a kind of linguistic entity that designates the same object in all possible worlds (in which the object exists) and never designates anything else.³¹ With respect to proper names, Kripke believes items are given 'initial baptisms' where a speaker dubs a certain object (or more rarely a definite description) with a particular name. Speakers succeed in referring to something (designated by the name) because the ordinary use of the name provides a link in a causal chain going back to the initial naming of the object.³² Speakers and their audiences understand what (or whom) is referred to from the past use of the name from speakers

³⁰ Soames (2010b) states that 'possible worlds' are based on three leading ideas with respect to their leading advocates (p. 124): "(i) world-states are not alternate concrete worlds; they are properties specifying the ways the world could be, or coherently be conceived to be (Stalnaker 1976); (ii) they need not be given purely qualitatively, but can be specified in terms of objects and properties (Kripke 1980); (iii) the space of world-states includes not only the actual and genuinely possible, but also the metaphysically impossible (Salmon 1989). The actual world-state is the maximal world-describing property that the world instantiates, metaphysically possible world-states are those that could be instantiated, and epistemically possible states are those one cannot know *a priori* not to be instantiated." The term 'possible world semantics,' refers to theories that state the truth conditions of sentences that contain modal expressions like 'could,' 'would,' and 'possibly,' in terms of related claims about world-states (p. 129). Possible world-states are useful for regimenting modal reasoning, investigating modal claims, and formulating systematic theories of the truth conditions of modal sentences and propositions (p. 130).

³¹ Kripke introduces and stipulates this fixed-definiens technical term at his will. He says, 'Let's call something a *rigid designator* if in every possible world it designates the same object, a *nonrigid* or *accidental designator* if that is not the case' (p. 48). Under these definitions, proper names rigidly designate but definite descriptions usually don't.

³² With respect to the informational value of the identity statement 'Hesperus is Phosphorus,' Kripke argues that because a proper name is a rigid designator (i.e., designating the same object in all possible worlds), a statement in which the identity sign is flanked by two rigid designators must be *necessarily true* if it is true at all, even if the statement is not knowable *a priori*. One might initially suppose that since the statement 'Hesperus is Phosphorus' was discovered empirically to be true, it is then just contingently true. But, Kripke says 'Hesperus is Phosphorus' is necessarily true (if true at all) because 'Hesperus' and 'Phosphorus' are proper names for the same object. Since these linguistic expressions both rigidly designate Venus in all possible worlds, and since Venus=Venus in all possible worlds 'Hesperus is Phosphorus' is true in all possible worlds.

earlier in the historical chain. For Kripke, the proper name of a person is 'rigid' in that it designates a unique person that could be imagined existing in other possible worlds.³³

Kripke provides a number of intuitive considerations (e.g., including the various possible life activities of Godel, Schmidt, and Feynman) to vigorously *deny* that if 'N' is a name (as a linguistic entity) which is meaningful for S, then there is a cluster of descriptions which S believes to be true of S1 (a person) that allows S to uniquely refer to S1 (a person). In other words, no one can be expected to have an identifying cluster of descriptions for every name so as to pick out a single unique object. Proper names are not equivalent to a speaker's associated set of definite descriptions, because these attributes are non-rigid designators and may be applicable to many items in many possible worlds.³⁴

With a theory of possible-worlds identity, metaphysical necessity and a theory about the reference of proper names, this allows Kripke to defend a kind of essentialism with respect to natural kinds. For Kripke, any natural-kind term (e.g., water, gold, heat) is a rigid designator based upon its historical naming where the identity of a kind (and its essence) is determined by physical reality (of the objects) and not by human interests. For example, water was long ago rigidly fixed as a kind of substance with various

³³ In essence, Kripke prescribes the following terminology, definitions, and axioms: 1) A 'possible world' is a way the word might have been. 2) A 'rigid designator' as a kind of linguistic entity that designates the same object in all possible worlds in which the object exists and never designates anything else. 3) A 'necessary truth' is when there are no possible worlds where **p** is not true. 4) a 'contingent truth' is one which is true in the actual world, but not in all possible worlds. Kripke believes that this model describes metaphysical reality. But it is argued here that we need not adopt any sense of metaphysical necessity in order to respond to interesting epistemic and semantic philosophical questions. Kripke's introduction of 'rigid designator' is ultimately *ad hoc* while defending some traditional metaphysical distinctions. In this chapter, we seek to describe ordinary linguistic practice and intuitions about 'contingency' and 'necessity.'

³⁴ Kripke not only denies on intuitive grounds that proper names are associated (or are equivalent to, synonymous with, or have the same meaning) as definite descriptions, but he provides three separate arguments against descriptivism: a modal argument, a semantic argument, and an epistemic argument. The modal argument (pp. 48-49, 71-77) claims that since proper names are rigid designators and ordinary descriptions are not; so, then proper names and definite descriptions cannot mean the same thing. The semantic argument (pp. 78-85) claims that the definite descriptions associated with a proper name often don't pick out a unique referent (and sometimes the descriptions are even false of the referent). The epistemic argument (pp. 86-87) runs on the assumptions of *a priori* knowledge and that an identity statement is metaphysically necessary (if it is true at all). It is said that if the semantic values of linguistic expressions are the same, then they should be substitutable, preserving the same meaning of a proposition. But because this is not the case; the substitution of proper names and definite descriptions lead to sentences with different truth values. Proper names and definite descriptions are therefore not equivalent in meaning.

observable properties (e.g., clear, found in lakes). It was not until the seventeenth century that the essential necessary chemical properties of water (i.e., as hydrogen and oxygen) were discovered. Given that water was rigidly designated by the name 'water' as a natural kind on Earth, it is metaphysically necessary that these same essential chemical properties be present in any other possible world where instances of water exist. This idea is most clearly illustrated with Hilary Putnam's (1975) 'Twin-Earth' example that is familiar to most philosophers.³⁵ Kripke and Putnam both claim that the identity proposition that 'water is H₂O' is necessarily true (i.e., in all possible worlds) if it is true at all. Although the identity between a natural kind term ('water') and its essence (H₂O) is metaphysically necessary (based upon the initial rigid designation that fixes the reference of the term) this relation is only knowable *a posteriori* because this proposition can only be discovered as true from empirical experience.

A Critique of Kripke's Semantics, Metaphysics, & *A Priori* Epistemology

Is the sense of 'necessity' involved in Kripke's possible-worlds semantics fruitful for answering philosophical questions? Does it (i) explain the function and epistemology of proper names in ordinary discourse and how 'reference' is achieved, (ii) explain the epistemology of essential properties with respect to natural kind entities³⁶ and (iii) explain the epistemology of deductive logic and mathematics? I believe Kripke's theory

³⁵ Putnam imagines that there is a planet somewhere in the universe that he calls Twin Earth. The physical environment of Twin Earth is qualitatively indistinguishable from Earth. Despite its perceptual similarity, there is a difference between Earth and Twin Earth. Whereas the chemical composition of the stuff that falls as rain, and is in rivers, lakes, and oceans that we call 'water,' is H₂O, the chemical composition of the similar looking stuff on Twin Earth, that the Twin-Earthians call by a similar-sounding name, is something different- XYZ. According to Putnam-Kripke, it is intuitive that the stuff on Twin Earth, despite being indistinguishable from water-- it looks the same, tastes the same, feels the same, it is really not water. On this account, the 'meaning' of a natural kind term isn't in a speaker's mind. No matter what entities that a natural kind term refers to, for something to be of the same kind in possible worlds, the entity must have the same essential natural qualities in every world (where the entity exists). The necessity of 'water is H₂O' resides in the way that the world is, rather than with the superficial descriptions about how the liquid appears to us. A natural kind term rigidly refers to the same kind of thing in all possible worlds.

³⁶ Kripke defends "essentialism." This is the thesis that some properties of things are properties that those things could not fail to have. He says, 'When we think of a property as essential to an object, we usually mean that it is true of that object in any case where it would have existed' (p. 48). For Kripke as with traditional metaphysicians, the essential nature of (individuals and kinds of) things/objects is determined by the real nature of the things. It is believed that there is a natural ontology of what necessarily exists and its identity.

fails on all three accounts. I believe that the concepts of 'reportive' and 'theoretic' definition found in chapter six provide better insight into the epistemology of proper names and natural kind essential properties than does Kripke's picture. Like Kripke, I do not endorse the Frege-Russell-Searle view that proper names are *equivalent in meaning* (or *abbreviations*) to definite descriptions or that these descriptions denote a unique referent.³⁷ Instead, I maintain that a speaker's intended referent for a proper name can be determined by a series (or cluster) of associated definite descriptions manifested by a speaker's reported definiens of that name (as discussed in chapter ten).

For now, we will attend to some disputable assumptions (**i**, **ii**, **iii**) crucial to Kripke's semantic-metaphysical-epistemic picture.

(i) Do linguistic entities acquire meaning so as to refer to something when used in a context? According to formal semantic theories, we use language to talk *about the world*. The practice of a referential truth-theoretic semantics *assumes* that the *meaning* (or intension) of a term (or phrase, or sentence) is the object(s) (or concept, or function) that the linguistic entity refers to, or denotes. The questions asked are: How do linguistic expressions (words, sentences, definite descriptions, and numbers) refer? What exactly is the 'mechanism' of reference? How does a word 'attach to' parts of reality?

Against this dominant intuitive worldview of linguistic reference, I maintain that it is *false* that linguistic expressions (written terms, sounds, or tactile) when used in a context can possess a *meaning* and can be *about something*. The assumption that a *linguistic entity* can 'possess' (or 'take on') a semantic property (a meaning) when used in a context or that it can refer (or 'attach') to reality *is metaphorical*. It is a metaphor that the referent of a linguistic entity (in a context) can be what the linguistic entity is 'about,' 'stands for,' or is 'linked to,' and that humans can 'grasp' sentence meaning, and proper

³⁷ I agree with Kripke's stated assessment (p. 71) that the 'description theory' of proper names is false: 1) To every name or designating expression 'X', there corresponds a cluster of properties, namely the family of those properties such that S believes X possesses those properties. 2) One of the properties or some conjointly, are believed by S to pick out some individual uniquely. 3) If most, or a weighted most, of the properties are satisfied by one unique object y, then y is the referent of 'X.' 4) If the vote yields no unique object, 'X' does not refer. 5) The statement, 'If X exists, then X has most of the properties' is known *a priori* by the speaker. 6) The statement 'If X exists, then X has most of those properties' expresses a necessary truth (in the idiolect of the speaker). With a descriptivist theory below (involving speaker reference) I deny the latter five statements of this theory of linguistic reference.

names can 'carry' a meaning or sense. That a proper name 'picks out' the same object in every possible world is a metaphor. While a truth-theoretic referential semantics can be used to construct precise and unambiguous models (that 'imitate' or 'reflect' natural language), truth-functional systems do not represent (principles of) a reality of 'what is.'

Instead of assuming that *linguistic expressions* acquire meaning and have *semantic reference* (so as to mean this or refer to that) it is more fruitful to observe how *speakers* can use linguistic expressions to *refer* to entities. Personal intentions, context, and a familiarity with a language allow speakers and audiences to identify the functions of the certain kinds of linguistic entities (e.g., proper name or definite description) in an utterance. '*Speaker reference*' as discussed in chapter ten is a pragmatic notion pertaining to assertions in context, and the background personal beliefs of persons.

(ii) Is modal 'metaphysical necessity' more informative than the other senses of necessity (causal, deductive, conceptual)? It is believed by Kripke and many theorists that the idea of 'metaphysical necessity' is understandable in terms of 'conceivability,' 'counter-factuals,' or 'possible-worlds.' These concepts are most relevant to an explanation of modal discourse.³⁸ Metaphysicians understand themselves as exploring the *nature of modality*. In a consistent world, reality has a modal structure.

But is it *true* that reality possesses a 'modal' structure, independent of what persons believe (or stipulate)? If questions about deductive and physical necessity, and 'existence' and 'identity,' can alternatively be answered without an *a priori* possible-worlds metaphysical discourse, then 'metaphysical necessity' may be irrelevant.

(iii) Are there *a priori* truths? In the overview of Kripke's metaphysics, his most innovative and provocative claims are that there are 'necessary truths' knowable only *a posteriori*, and *a priori* truths that are 'contingent.' A proposition is said to be *a priori* if its truth can be established by reasons that are independent of empirical investigation or observation. In comparison, a proposition is said to be knowable *a posteriori* if its truth-value is determined by sense experience and observation. Examples of metaphysical necessity and *a priori* truths are central to Kripke's argument.

³⁸ Kate Kearns (2011, p.79) says that "In English, modality is most commonly expressed by the modal verbs, *shall, should, can, could, may, might, would, and must*, and sometimes *will*, and by adverbs like *possibly, maybe, perhaps, and necessarily*."

With respect to (ii) and (iii), let's summarize Kripke's examples of 'metaphysical necessity' and instances of '*a priori* truths' and comment on their plausibility.

(a) Mathematical theorems (and hypotheses) are 'metaphysically necessary.'

Kripke's first example of metaphysical necessity concerns the Goldbach conjecture that states that an even number greater than 2 must be the sum of two prime numbers (pp. 36-38). Kripke says that in mathematical reality, the Goldbach conjecture is if true, necessarily true, and if false, necessarily false. Goldbach's conjecture is subject to direct computation. By hypothesis, we assume it to be true. The conjecture cannot be contingently true or false, and whatever truth value it has, belongs to it by necessity.

(b) Analytic propositions are 'metaphysically necessary.' A second kind of metaphysical necessity mentioned by Kripke is that of an analytic statement where he says "...an analytic statement, is in some sense, true by virtue of its meaning" (p. 39). Kripke puts aside the analytic-synthetic distinction as a well-known distinction that doesn't have much consequence to his lecture. He notes that analyticity is a semantic property of some sentences, and that those sentences are true in all possible worlds.

(c) Initial naming sentences are 'metaphysically contingent' *a priori* true.

Kripke contrasts metaphysical necessity with epistemic necessity (p. 56). He questions the epistemic status of the assertion 'stick S is one meter long' for the person who defined (i.e. initially baptized) and fixed the referent of 'meter' at a given time. Kripke claims that the person who historically fixed the length of a 'meter' by referring to a particular stick, knows this *a priori*; but that the metaphysical status of the assertion is that of a contingent statement (because the stick could have been a different length). Kripke claims that this is an example of a contingent *a priori* truth. The fixing of the referent of 'meter' is similar to the initial naming of the person Aristotle (by his parents) where a statement 'x is to be designated by the name N' is epistemically *a priori* true, but metaphysically contingent.

(d) Identity statements about particulars are 'necessarily metaphysically true' (if in fact true). It is his signature claim, Kripke maintains that in the case of true identity statements where $x=x$ or $x=y$ (and no names occur in these entities; x and y are just variables for particular objects), such statements are metaphysically necessarily true (p. 108). They are true even if the human race never existed. 'Identity' is the relation

between a thing and itself. Kripke argues that one knows *a priori* by a deductive argument, that *if* an identity statement is true, then it is necessarily true.

Kripke (1971) and Ruth Barcan Marcus (1993) have argued that there are no contingent identity statements. This argument is spelled out by Lowe (2002, p. 85):

- (1) For any object *x*, it is necessarily the case that *x* is identical with *x*. (The Law of Identity)
- (2) For any objects *x* and *y*, if *x* is identical with *y*, then whatever is true of *x* is also true of *y*. (Leibniz's Law of the Indiscernibility of Identicals)
- (3) *a* is identical with *b*. (Assumption)
- (4) It is necessarily the case that *a* is identical with *a*. (From 1)
- (5) It is true of *a* that it is necessarily identical with *a*. (From 4)
- (6) If *a* is identical with *b*, then whatever is true of *a* is also true of *b*. (From 2)
- (7) Whatever is true of *a* is also true of *b*. (From 3 & 6)
- (8) It is true of *b* that it is necessarily identical with *a*. (From 5 & 1)
- (9) It is necessarily the case that *a* is identical with *b*. (From 8)
- (10) If *a* is identical with *b*, then it is necessarily the case that *a* is identical with *b*.

It is part of Kripke's theory of proper name reference that an initial naming sentence *rigidly designates* its object. If two names are used to designate the same object (e.g., where it is not known at the times of initial name designations that the object named is one and the same), it is both *a priori* true and metaphysically necessary that the identity relation between the referent of the two proper names is always maintained.

Using the example of 'Hesperus is Phosphorus' where it was empirically found (in our world) that these two names (as linguistic entities), when used in a context, referred to the same planet (i.e., Venus), Kripke defends the metaphysical necessity of the identity. Kripke concedes that there may be other possible worlds where different planets appear in the same spatial location in the morning and evening corresponding to where Venus appears in our world. But he says that in such a world at least one of the planets wouldn't be the same referent (i.e., Venus) that *we* refer to when using the names Hesperus and Phosphorus. A definite description referring to a planet by spatial location is a contingent truth, but in a world where a single object has been rigidly designated by two different names, the object retains its identity (across stipulated worlds) and so it isn't possible in other worlds for Hesperus not to be Phosphorus. Identity statements between proper names, when true at all, are necessarily (metaphysically) true.

(e) Individual objects have 'metaphysically necessary properties' (and are knowable *a posteriori*). *Individual objects* having certain necessary properties, is another example of metaphysical necessity. Kripke goes into digressions about how the rigidity of the naming of particulars (e.g., Queen Elizabeth, Richard Nixon) and the ostensive reference to particulars (e.g., a table) allow for the intuitive investigation of essential properties among particular objects.³⁹ Both ordinary counter-factual talk and essential properties talk are deemed intelligible and intuitive. Kripke believes that the *origin* of an object is an essential *de re* property of any object and is metaphysically necessary. The fundamental feature of 'de re' claims of necessity, is that individual objects have certain *essential properties*, and that it is in virtue of having some essential properties that objects maintain their identity over time and across possible worlds.

(f) Theoretical identifications are 'metaphysically necessarily true' (and are knowable *a posteriori*). Kripke's final examples, again appeal to the *de re* (i.e., essential properties) modality (of things) with respect to the identification of natural kinds. Examples of theoretical identifications are 'water is H₂O,' 'light is a stream of photons,' 'lightning is an electrical discharge,' and 'gold is the element with atomic number 79.'

Kripke discusses 'gold' as a term for a *kind* of thing (p. 118). He says that others have discovered this kind of thing, and we have heard of it, and as a community of speakers, we have a certain connection between ourselves and a certain kind of thing. With the discovery that gold's atomic number is 79 we know that this property is true of gold in addition to its original identifying marks (color, luster, hardness, etc.). Similarly, in the case of 'tigers' we suppose that tigers form a certain species or natural kind. He says, "we can say in advance that we use the term 'tiger' to designate a species, and that anything not of this species, even if it looks like a tiger, is not in fact a tiger" (p. 121).

³⁹ Kripke (1971) asks his audience to consider the wooden table at which he was standing. They know empirically that the table is wooden. Now, he asked, could *that* table have been made of ice? Certainly, there could have been an ice table there instead of a wooden one, but that would not have provided what was required. What Kripke is asking was whether the table which in fact was wooden could instead have been made of ice? He says that we have a very strong intuition that any table made of ice would not have been the (wooden) one that was being talked about. Kripke claims that our *knowledge* 'if x is a wooden table, then x could not have been made out of ice' is *not empirical*. We cannot conceive of an 'experience' that would verify it or falsify it. So, this conditional is known *a priori*, and is a necessary truth.

Kripke argues that species are identified and defined *not* by having some cluster of superficial properties as the necessary and sufficient conditions for any particular object to be a member of that kind; but rather that a name historically designates a putative species and works as a rigid designator to identify *that kind of thing* where the thing is usually identified by paradigmatic instances. Kripke argues that statements representing scientific discoveries of what this stuff *is* are not contingent truths but necessary truths in the strictest possible sense (p. 125). Objects in other worlds (or in our own world) which superficially appeared to be gold or water; but weren't of atomic number 79 or H₂O respectively would not be instances of gold but would be 'fool's gold' or 'fool's water.' Given the initial naming of putative natural kinds, it is supposed that natural kind entities have some *de re* essential properties that allows us to refer to them as natural kinds. When referring to a natural kind, the picking out of objects doesn't concern an object's superficial properties, but is a reference is to an object having certain essential properties (that have been discovered *a posteriori* of the kind).⁴⁰

Are There *A Priori* Truths?

After these six examples about metaphysical necessity and *a priori* knowledge, we can again ask: Are there *a priori truths*?⁴¹ Or is there an alternative explanation for

⁴⁰ Kripke notes that in the original naming (i.e., rigid designation) of kinds, the identification of kinds usually involves the recognition of superficial phenomenal properties which lead us to believe certain objects are part of a natural kind. For example, we originally identified light by its characteristic internal impressions produced in us, and later identified heat as an aspect of its effect on our nerve endings or sense of touch. That the concept of 'light' now has a theoretical identification with streaming photons, the reference to instances of light in other possible worlds is to streaming photons and not to its characteristic visual effect. That light gives humans certain distinct visual impressions turns out to be a contingent property of light, since light is essentially streaming photons, and we can imagine cases where streaming photons may not produce a visual effect in other species. That 'light is streaming photons' is a metaphysically necessary statement as it is a *de re* essential property of any x being an instance of light. But this theoretical identification statement wasn't known *a priori* (pp. 129-131).

⁴¹ To summarize the above examples: Kripke's claim that there are *a priori* epistemic truths as well as metaphysically necessary truths, rests substantially upon examples of (a) *mathematical hypotheses* (e.g. Goldbach's conjecture) as being knowable *a priori* and metaphysically true (if true), (b) *analytic statements* (e.g., bachelors are unmarried) as a semantic property of some statements and true in all possible worlds, (c) *the initial naming* of the person Aristotle (e.g., by his parents) where a statement 'x is to be designated by the name a' is claimed to be *a priori* true, but metaphysically contingent, (d) *identity statements* between proper names (when true at all) are necessarily (metaphysically) true (e.g. Hesperus is Phosphorus), (e) that *individual objects have essential properties* to maintain their identity over time and across possible worlds, and (f) that *theoretical identifications* of rigidly-designated natural kinds (e.g., 'water is H₂O,' 'light is a stream of photons') are metaphysically necessary and *a posteriori* knowable.

the semantics of the propositions that Kripke calls 'metaphysically necessary' and knowable *a priori*? We have already given an answer in chapter seven (mathematics) and elaborate with more detail in chapter fourteen: There are no *a priori* truths (other than truths about truths-in-a-language). Metaphysical necessity is likely best explained under the notion of 'conceivability' rather than 'possible worlds.' In fact, the intuitive arguments that Kripke uses to support his possible worlds model are based upon 'metaphysical conceivability' (4B, above) considerations. Kripke's paradigm example of an *a priori* truth, as being the law of identity ($x=x$), is just a prescriptive axiom for measuring numeric identity. Axioms are neither literally true nor false.

Response to (a) True mathematical sentences (e.g., $141678 + 639465 = 781143$) can be understood as being the result of 'deductive necessity' where a sentence is *necessarily* true relative to and entailed by the vocabulary, grammar, inference rules and premises of a valid argument in a formal language. Theorems (or conjectures) such as Goldbach's are *necessarily* true or false relative to, and entailed by axioms, syntax, and inference rules of a formal language (even if not provable). 'Deductive necessity' explains mathematical and logical necessities. Metaphysical necessity isn't needed.

Response to (b) In the case of analytic statements, we can appeal to a 'deductive necessity' where a sentence is true, relative to, and entailed by the fixed definiens definitions-vocabulary and grammar-syntax of a language (without recourse to an entailment by explicit inference rule). This is argued in detail in chapter fourteen.

Response to (c): With respect to the concept of initial naming sentences (or initial baptisms), it seems that these assertions are prescriptive, and in no sense, are they (*a priori*) true. Kripke's example of the authoritative utterance of 'one meter is the length of S at t' is actually an example of a stipulative definition. This prescriptive proposition is indeed 'contingent' in the sense that the length of S could have different, or a different linguistic term could have been used to fix the stipulate length. But this initial prescriptive utterance isn't literally true, much less *a priori* true.

Response to (d): With respect to Kripke's claim that identity statements between proper names (when true) are always necessarily metaphysically true, the law of identity (premise 1) and Leibniz's Law (premise 2) beg the question on the way to proving its

conclusion. Kripke believes these first two premises are 'axioms' and are self-evidently true, without proof. The law of identity is applicable to any object in any possible world, for it is inconceivable that an entity isn't identical with itself: that identical objects are necessarily identical is a self-evident thesis of philosophical logic independent of natural language (p. 4). In the 1971 essay "Identity and Necessity" (when explaining the first premise) he just casually asserts that "every object surely is necessarily self-identical."⁴²

In contrast to Kripke's acceptance of the traditional 'self-evidence' of axioms, it is claimed here that these two axioms are not self-evident truths. A more modern mathematical characterization of an 'axiom' comes from David Hilbert (1862-1943) and Paul Bernays (1888-1977) where an axiom 'is a proposition composed of undefined primitive terms and it cannot be proved from other propositions (and axioms) within a formal system'. The role of an axiom (and its content) within a formal system is to characterize certain primitive (undefined) terms. Axioms can be assumed-true only under a consistent interpretation (or model) in a mathematical system. On the Hilbert-Bernays view, the adoption of axioms (as *assumed-true, not literally true*) is based upon their role in a consistent formal theory and depends upon how a theoretician constructs the theory.

From this epistemic view, axioms can only be *prescribed* as the foundational rules for the (accurate) measurement of a given domain of interest:

A '**prescription**' is an assertion that purports to express a stipulation (or rule) upon a practice, where its correctness (or incorrectness) is *dependent* upon its acceptance (or non-acceptance) by particular persons.

A characterization of an axiom as being prescriptive is vastly different from philosophers and mathematicians who believe that axioms and 'laws of logic' are the result of an *a priori* investigation of reality. On the contrary view held here, the identity axiom and Leibniz's Law are understood as *implicit definitions* of how the words 'identity,' 'necessity,' 'object,' and 'property' (as undefined terms) are to be used in a metaphysical system. The law of identity in effect just *stipulates* that (numeric) 'identity' is a relation

⁴² Lowe (2002) says that it is an indisputable fact that 'everything is identical with itself.' Everything whatsoever stands in this relation to itself and to nothing else. It can only hold between a thing and itself (p. 23). As an *a priori* science, Lowe maintains that there is a strong case for saying when we talk about identity over time, we are genuinely talking about *identity*, that is; about the relation which, of necessity, every object bears to itself, and only to itself (p. 91).

that each object bears to itself in every possible world. It is not a self-evident truth of reason. As a result, the first two premises of the Kripke-Marcus argument effectively 'beg the question' with 'prescribed axioms' in a deductive argument to prove 'true identities are necessary.' It is well-understood that an argument is 'sound' if and only if its premises are true, and its form is valid. Premises 1 & 2 are not literally true. The Kripke-Marcus argument is valid, but it isn't sound. It can be ignored (or set aside).

Response to (e): With respect to 'object' identity, do individual objects have essential properties that allow them to maintain identity over time and across possible worlds? The thesis that there are qualitative properties 'essential' to a particular existent in order for it to retain its numeric identity (opposed to its contingent or accidental properties) is controversial. The alleged 'essential properties' for 'object identity' are often mundane, about an item's origin, or composition (e.g., a wood table couldn't have once been ice). The triviality of essential properties is illustrated by Scott Soames (2003, p. 347) when he says that the 'essential properties' of himself (i.e., Soames) include: being human, having a brain, having a body made up of molecules, being mortal, and the property of not being identical with Saul Kripke. While it is plausible that natural kind entities have objective essential properties (to be of a kind), it isn't likely that individual objects (e.g., persons, tables, numbers) have objective essences that identify them as unique and enduring objects.

Response to (f): Finally, the theoretical identification of 'water is H₂O' is better explained as an instance of a 'theoretic definition' about natural kinds. This is where essential properties are presumed to have some objective homeostatic condition(s) that are *necessary* conditions for particular instantiations of the natural kind concept. Natural kind entities (water, light) have a self-unity, or an independent nature that allows them to be the subject of physical analysis. The recognition of natural kind entities requires no metaphysical possible-worlds explanation.

Conclusion of (a-f): Kripke's examples *fail* to establish *any evidence* of any examples of *a priori truths*, nor do they explain the 'necessity' relevant to mathematical propositions, analyticity, and natural kinds.⁴³

Should Analytic Philosophy Rely on Something More than Conceptual Analysis?

As mentioned, implicit in Kripke's theses in *Naming and Necessity* is that analytic philosophy is more than just the conceptual analysis of language.⁴⁴ Metaphysicians understand themselves to be engaged in a more abstract methodology for determining the meaning of words, and not a psychological (or social scientific) analysis of what persons mean (or intend) when making different kinds of assertions. The 'principle of bivalence' and 'law of excluded middle' are thought to describe how a consistent world must be; they are *a priori* truths entailing that *any proposition* (asserted in a context) must be literally true or false. With referential theories of formal semantics, there is a single kind of proposition, that of description. Even in the case of a stipulative definition, a speaker or writer is judged to be just describing how a word will be conventionally used. The idea that 'prescriptions' are a part of language is often deemed incomprehensible given the assumed referential aboutness of words, phrases, and sentences/propositions.

Solving Paradigm Problems of Formal Semantics and Metaphysics

As indicated in the past chapters, the concepts of 'meaning,' 'truth,' and 'reference' have been dominant in modern theories of linguistic meaning. As an alternative when formulating a communication-intention theory of assertion meaning, it has been asked

⁴³ Bonjour's defense of *a priori* justification is discussed in chapter fourteen. In that chapter, it is granted that *if a priori knowledge* is technically defined as 'knowledge without its justification based upon specific events in the empirical world' *then* there are indeed *a priori* propositions (i.e., propositions that are knowable as being truths-in-a-language).

⁴⁴ In summary, Kripke's picture is that metaphysical 'possible worlds' necessity differs from physical, deductive, and epistemic *a priori* necessity. Kripke wants to correct errors he attributes to Frege and Russell about how proper names designate their objects. He denies that the semantic reference of proper names is equivalent to a speaker's statement of alleged cluster properties that are supposedly sufficient to establish a unique referent. Instead, he believes that individual objects (and natural kinds) have essential properties identifying them in any case where they exist. The epistemology of proper names is that they rigidly designate their referents (upon initial baptism) and that from the historical use of a proper name (or natural kind term) persons uniquely refer (in a context) to a particular named object or natural kind.

here why not start with the semantic existents of 'descriptions' and 'prescriptions' in combination with a theory of definition?⁴⁵ The descriptive-prescriptive distinction, a tripartite analysis of definition, and a theory of speaker reference not only resolve some pertinent epistemic and semantic questions found in analytic philosophy, but they also help to resolve some of the recent puzzles about 'reference' found in truth-conditional semantics. We will discuss three epistemic-semantic issues to show how a speaker theory of reference better responds to questions about (1) proper name reference, (2) the meaning of identity statements, and (3) the essential properties of natural kind entities.

A Theory of the Speaker Reference of Proper Names

How are proper names used to refer to particular objects? What has to be true for a proper name to be meaningful for an individual? How in the utterance of a proper name does the speaker succeed in referring to an object? To repeat statements made in chapter ten, the simple answer is: in contexts where a question of proper name reference occurs as a genuine real-world question, a speaker simply states a *reportive definition* (or a series of definite descriptions) describing what one is talking about, as a response to a request for clarification. For example, if I'm using the name 'Richard Feynman' in a situation, and the listener didn't understand who I was talking about I could reply that I was talking about a leading contemporary theoretical physicist. My listener knowing that I'm using a proper name in a context would understand a (vague) referent from my report of a definiens. People apparently succeed in referring to the person Feynman easily. Individuals as speakers or audience need to know very little about the entity referred to by the use of a proper name. In most situations, the given context of an assertion is enough for a listener to identify the entity being referred to by a speaker using a proper name, without any question or confusion. The function of a proper name is well-understood among natural language users. A proper name is understood to be 'about' (i.e., denote, designate) a particular unique entity. Proper names are normally understood

⁴⁵ Compare the perspective of Soames (2002) who claims we utter sentences in order to convey information (p. 56). Typically, there is some common core of information that is asserted and conveyed by sentence *s* across different contexts. The meaning of an unambiguous, non-context-sensitive sentence *s*, the proposition *p* that it semantically expresses, is this common information (p. 204). Stalnaker (2011) similarly maintains that sentences convey information and should be about what is known or believed.

by language users to function differently than definite descriptions. There are no 'real world' (non-formal) problems about how proper names function.

Given that proper names are usually communicated without a problem, how does speaker reference proceed when there is an explicit question about identity, or some kind of ambiguity, or confusion? For successful speaker reference to occur, when a speaker responds to a sincere question about identity, there is no single description or disjunction of descriptions that must be associated with the proper name. The descriptive information (if required) is vague and open-ended. Persons successfully refer using proper names and 'reportive definitions' despite not having a definiens that applies uniquely to a referent.⁴⁶

Kripke's critique of a descriptivist account of proper names focuses upon the insufficiency of definite descriptions to pick out a *unique* referent. He rightly contends that the referent of a person's use of a proper name is in large part due to a term's previous historical use. Kripke is correct that the referent of a proper name does not *exclusively* depend on what definitions (or definite descriptions) that any person(s) report for that name. There is indeed some continuous historical connection from an object (or concept) *x*, *x*'s initial naming, and the later uses of a proper name in sentences. The referent of a proper name is tied to an initial naming and its subsequent use.⁴⁷ But it is responded that this historical tie in the use of a proper name *differs little* from the etiology of other words. The current use of all ordinary terms is based in part on their historical use. If one doesn't understand the reference of a proper name for one reason or another, a chain of speakers' use won't help gain an understanding of what is being referred to.⁴⁸ To repeat,

⁴⁶ Scott Soames (2003b) would respond that the observations in these paragraphs about the use of names are "unobjectionable and even platitudinous." But he says these observations aren't a part of a (semantic) theory, they are just facts that an adequate (semantic) theory must account for (p. 19). Soames seeks an account of how proper names (as linguistic entities) contribute to sentence meaning. I contend that these observations about 'speaker reference' help explain how *speakers use proper names* to refer.

⁴⁷ Gareth Evans' (1973) counterexample is that 'Madagascar' was named as part of the African mainland, but because of a mistake by Marco Polo, westerners applied it to the island (for which it now stands).

⁴⁸ To repeat a counterexample to the direct reference theory of proper names: I start telling you about my childhood pet 'Oscar.' I define 'Oscar' as 'a small green box turtle once found in my backyard and placed in a fish aquarium.' This reportive definition is needed because the chain of the active use of this name ended shortly after Oscar died over fifty years ago. I am the only person who remembers this turtle. My personal contextual causal-historical use of 'Oscar' wouldn't establish my speaker-to-listener referent.

in situations of informing an uncertain listener about the intended referent of a proper name, a set of descriptions (i.e., a reportive definition) is required from the speaker.

A Speaker Reference Theory about the Meaningfulness of Identity Statements

Another problem as described above, is to explain how identity statements such as 'Hesperus is Phosphorus' convey information when 'Hesperus' and 'Phosphorus' are the names of a single planet. What information is gained from assertions of identity? In Frege's example, the morning star (named 'Phosphorus') and the evening star (named 'Hesperus') were discovered to be one and the same. On a speaker theory of reference, if it is empirically discovered that the morning star is the same object as the evening star, then what is informative is that two names (viz. 'Phosphorus' and 'Hesperus') with different definiens (viz. 'the first star appearing in the morning' and 'the first star appearing in the evening') were being used to refer to one and the same object. This eliminates the false belief that the two names and the definiens designated two distinct objects. Or if it is discovered that 'the first star in the morning' is 'the first star in the evening,' what is informative is that it eliminates the false belief that an object doesn't have the conjunction of two properties (i.e., visible in the morning and visible at night).⁴⁹

Contrary to Kripke, it is contingent (and not necessary) that there was an identity waiting to be discovered. It is conceivable that there was no identity to be discovered. Kripke's deductive argument about the necessity of identity statements and his account of metaphysical possible-worlds necessity do nothing to undermine the actual linguistic and empirical contingencies in this example.⁵⁰ The so-called 'semantic problem'

⁴⁹ Lowe (2002, pp. 87-88) replies to the possibility that one can *imagine* a world where astronomers discover that Hesperus and Phosphorus are two distinct planets. He says, however, that one can simply *imagine* a situation, does *not necessarily* imply that it is a *genuinely possible* situation. For example, one can imagine a time-traveler going back to the past and changing the course of history: but it is *not genuinely possible* to change the course of history to make it the case that *something which has happened* to have *not happened*, for this involves a contradiction. All that we can really imagine is a possible world in which there exist two planets *very similar* to Hesperus and Phosphorus, where astronomers of that world would discover two distinct planets. In response, Lowe's appeal to the principle of non-contradiction in claiming an imagined change of history is genuinely impossible, isn't relevant to the (imagined) *contingent* possibility that a planet seen at night, may not be the same planet seen in the morning.

⁵⁰ The 'Superman' case provides additional intuitive support that if it is found that two proper names have been used by a speaker to refer to one and the same person, this is a discovery about the *contingent*

encountered with identity statements lies in formal theorists' false belief that some linguistic entities (e.g., proper names) that compose a sentence (in a context) actually have a property of reference. We have emphatically denied that linguistic marks and sounds (as physical entities) when used in a context can literally 'pick out' or refer to objects, except as stipulated in a semantic model. If there is any merit to the intuition that there is some kind of necessity involved with the 'identity' of external physical objects, it might be explained as a nomological necessity.⁵¹

A Direct Reference Theory of Proper Names Has No Explanatory Power

A serious problem with Kripke's direct reference theory of proper names is that it fails as an explanation for how an identity hypothesis is resolved in real world cases. The following is an example. In 1994, a notorious Boston mobster, James 'Whitey' Bulger was tipped off that his imminent arrest was sought by law enforcement. Wanting to avoid prosecution, Bulger and his girlfriend quickly went undercover and illegally changed their proper names to avoid arrest. For most of sixteen years, Bulger, a fugitive, and his girlfriend, lived a secluded life in a California (USA) seaside apartment.

possibility of an identity. In this example, the discovery by Lois that 'Clark Kent is Superman' happens after Lois had previously defined 'Clark Kent' as 'the mild-mannered reporter' and 'Superman' as 'the protector of Metropolis' as reportive lexical items in her vocabulary. When it is discovered that Clark Kent (the man) is identical with Superman (the man), what is informative is that the two names (with different reportive definiens) were being used to refer to the same object. This eliminates that (prior) false belief that the two names and two definiens designated two distinct objects. Or alternatively, if it is discovered that 'the mild-mannered reporter' is 'the protector of Metropolis,' what is informative is that two names, 'Clark Kent' and 'Superman' designate the same person. This eliminates the false belief that a single object doesn't have the conjunction of these two properties (i.e., reporter and protector). Although Kripke can alternatively explain that the same object was baptized with different proper names at different times (to rigidly designate a single person) and that this leads to a causal-historical chain of the use of the two proper names, this theory adds nothing to the informational value of the true identity. Lois would implicitly learn after the empirical discovery of the identity (Superman=Clark Kent) that one object (in all possible worlds) had two different names in a causal-historical chain, but proper name rigidity isn't what makes the identity informative, nor does the fact of rigidity guarantee Lois' discovery of the (true) contingent possibility.

⁵¹ Intuitively we might say that there is a nomological or causal 'necessity' to the true identity after it is empirically discovered that there is only one planet involved with these two names. That one planet has the same orbit around the sun and is viewable at different positions at different times of the day is objectively true (if true at all). Causal law (nomic) necessity is where physical events (e.g., the orbit of a single planet) follow as a matter of (objective) physical necessity. But as stated above, it seems to be contingent that the appearance of a planet in the morning and the appearance of a planet at night are the same planet. It is intuitively conceivable (i.e., possible) that there is no identity of a single planet involved.

In 2010 a television newscast revisited the crime with pictures of the two. An acquaintance saw the newscast and contacted police, suspicious that a person known as Charlie Gaskell was really James Bulger. In order to determine whether the identity 'Charlie Gaskell is James Bulger' was true, authorities interviewed the acquaintance, an apartment manager, and the suspect's neighbors. They sought to determine whether the attributes in their definitions of 'James Bulger' matched that of 'Charlie Gaskell.' Are the reported defining characteristics of 'Charlie Gaskell' similar to those known of James Bulger (e.g., his 80's age, appearance of his girlfriend, his love of animals, and his use of cash only)? When confronting their suspect, authorities (obviously) presumed that if the man that they were arresting was James Bulger then he would have had a single identity since birth and a history of events (including a surreptitious name change) that would lead to his arrest. Whether he had illegally changed his name to 'Charlie Gaskell' was contingent upon his past history. The identity was eventually confirmed with further investigation and empirical evidence. The identity was established as true *in large part* from the initial witness assertions of their reportive definition (i.e., a cluster of definite descriptions) of the proper name of the man that they knew as Charlie Gaskell.

Even if Kripke responds that an identity is necessarily true *when true at all*, his possible-worlds necessity and contingency distinction has nothing to do with the evidence needed for a fallible identity thesis to be investigated and resolved. Kripke's admission that identity statements are only knowable *a posteriori* because their truth can only be discovered from empirical experience undermines any explanatory relevance for 'metaphysical' necessity. An identity statement in this case was empirically contingent and speaker reference was partially achieved with reportive definitions of a proper name.

Does Kripke's Account of Essential Properties of Natural Kinds Explain Them?

Kripke's possible-worlds theory claims that there is an initial rigid proper naming to natural kind objects, and it is in this way that natural kind entities are picked out by a natural kind term throughout the universe. The meaning (or referent) of a natural kind term is determined by the kind's natural properties and not by its superficial appearance and speaker descriptions. The composition of a scientific kind (or singular natural entity)

is what gives it identity and rigid designation across worlds by a proper name. Let's examine three examples that undermine Kripke's claims.

Example #1: Planet.

But is Kripke's account for how we come to identify natural kinds and identify their instances in other possible worlds theoretically helpful? On the contrary, scientists identify (and define) natural kinds without any discourse about rigid designation across possible worlds. Natural kinds and their essential properties are identifiable by theoretic definitions by physical scientists and philosophers and others. I will illustrate this with an example about the term 'planet' and the recent scientific demotion of Pluto from this kind. This recent history is described by Associated Press stories and the IAU website. It will be shown that we can readily understand natural kinds (with essential properties) without needing recourse to their being identifiable in other possible worlds.

The example is as follows. The existence of entities called 'planets' was noticed by the ancient Greeks, who saw them as 'wandering stars.' The word 'planet' comes from the Greek word meaning 'wanderer.' Over time, planets were known as 'large round bodies that orbit the earth.' The definition was based upon their physical resemblances as being a kind. Until recently, scientists didn't need a detailed definition of what a 'planet' was. The situation changed during a meeting of the International Astronomical Union (IAU) conference in Prague, Czech Republic in August 2006. The precipitating event for the need for a theoretic definition of 'planet' was the question of whether Pluto was actually a planet. In 1930, Pluto was declared a planet when it was thought that Pluto was larger than the planet Mercury. In 1978, it was discovered that Pluto is smaller than the Earth's moon. In the 1990's astronomers found other small objects in Pluto's vicinity that shared Pluto's orbital characteristics. These smaller objects were known as Kuiper Belt objects (KBOs). Was Pluto a 'KBO object' or a planet? Were other masses named 'Charon,' 'Ceres,' and 'Xena' planets, and should they be classified as planets?

A Planet Definition Committee of seven members was formed comprised of astronomers, writers, and historians that convened over a two-year period prior to the

2006 IAU meeting. Under their direction the following definition was proposed for the 2,500 astronomers and 75 nations that attended the conference:

A '**planet**' is a celestial body that (a) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium shape (i.e. being nearly round), and (b) is in orbit around a star, and is neither a star nor a satellite of a planet.

Planet Definition Committee member, Richard Binzel stated, "Our goal was to find a scientific basis for a new definition of planet, and we chose gravity as the determining factor. Nature decides whether or not an object is a planet." If the committee's definition was accepted, and passed the membership's vote, then there would be *twelve* total planets, including Pluto, Ceres, Charon, and one yet unnamed planet.

Surprisingly, the definition failed. Instead, a proposal by Uruguayan astronomer, Julio Angle Fernandez was preferred. During two open meetings, IAU members debated the relative merits of static and dynamic physics, and whether to include a body's orbital characteristics among the definiens criteria. In the end, the accepted definition not only required that the object must a) orbit around the sun and b) be large, and nearly round, it must also c) "clear the neighborhood around its orbit." The final definition of a 'planet' posted on the IAU website is:

A '**planet**' is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic (nearly round) shape, and (c) has cleared the neighborhood around its orbit.

Under this definition, Pluto could no longer be considered a planet, because its oblong orbit overlaps Neptune's orbit (violating the third condition). The previous measurement of a planet was one of resemblance among similar-appearing entities. But, with these deliberations it was assumed that the concept of planet *should*, and *does*, refer to a natural kind entity. Natural kind essences are discoverable, but they also involve some stipulation based upon explanatory factors and human interests.

The concept of a theoretic definition and this example of a 'planet' as a natural kind indicates that Kripke's rigid-designation theory of natural kind terms doesn't capture

the empirical and pragmatic factors in the discovery (and designation) of natural kinds. The knowledge of the extensions of natural kind entities is not explained by how terms semantically 'pick out' extensions in possible worlds. Instead, the unity, discreteness, and essentiality of physical natural kinds are determined by nomic-causal necessities.

Example #2: Propane.

Propane is a gas that is carbon and hydrogen: C₃H₈. The chemical formula of 'propane' is its essence. How do we know this essence? Physical scientists have empirically discovered it. Could propane have been counter-factually C₂H₇? It seems conceivable that it could have been. It intuitively seems to be a *contingent truth* that 'propane is C₃H₈.' This was a dominant belief until Kripke's modal theory.⁵²

On Kripke's theory, 'propane is C₃H₈' is a metaphysically necessary truth after propane was ostensively named and rigidly designated, and the word 'propane' was used to refer to a natural kind by a historical series of speaker references. The intuition that Kripke and Putnam support is that the assertions 'water = H₂O' and 'propane = C₃H₈' are *necessary because of the way the world is*, rather than upon our way of classification or our perception of a natural kind entity (e.g., of an item's superficial apparent properties). Let's review the Twin Earth example referenced in a footnote:

It is intuitive that the xyz stuff on Twin Earth, despite being indistinguishable from water-- it looks the same, tastes the same, feels the same, it is really not water. The 'meaning' of a natural kind term isn't in a speaker's mind. No matter what entities that a natural kind term refers to, for something to be of the same kind in possible worlds, the entity must have the same essential natural qualities in every world (where the entity exists). The necessity of 'Water is H₂O' resides in the way that the world is, rather than with the superficial descriptions about how the liquid appears to us. A natural kind term rigidly refers to the same kind of thing in all possible worlds.

⁵² Contrary to Kripke's position, Quine continued to maintain that a description of the world's physical laws and structure are contingently true. Gideon Rosen (MacBride, ed. 2006) states: "Some physical necessities will presumably be contingent. Suppose the laws of nature involve *particular numerical constants* that determine the strengths of the fundamental forces or the charges or masses of the fundamental particles. It will then be natural to suppose that the *precise values of those constants* are *not* aspects of the general *combinatorial structure* of the world and are therefore *contingent*..." (p. 36, italics added).

On the account of 'theoretic definitions' and 'natural kind entities' in the past chapters, there is *full agreement* that the identities 'water = H₂O' and 'propane = C₃H₈' are *necessary because of the way the world is*, rather than upon our way of perceiving it or classifying it (e.g. upon superficial apparent properties).⁵³ But on the view here, this necessity is a kind of causal law (nomic) necessity based upon homeostatic relationships (i.e. where a stable state of equilibrium exists between interrelated physical entities forming a unified entity). The 'necessity' of theoretic identity statements resides on the presumptions of physical causality, true theoretic definitions, and the normal (rigid) use of the natural kind term when applied to an item on Twin Earth (across worlds). 'Metaphysical necessity' has no role in explaining that necessarily 'propane = C₃H₈.'

Example #3: Electron.

On Kripke's theory, it is apparently the case that the electron (where it exists) was historically ostensively named and rigidly-designated, and the word 'electron' as it is now used refers to a natural kind that was initially identified and rigidly-designated by a number of physicists, and our present successful reference to the kind is the result of a historical series of past references. The identity of an electron, no matter whether it be in this world or in another possible world, depends upon whether the *physical constitution* of the entity is *the same* as the initially named natural kind entity (in this world) whatever the precise *a posteriori* properties of its constitution turn out to be.

But again, we ask, is Kripke's account for how we come to identify natural kinds and identify their instances in other possible worlds (and this world) theoretically helpful? As emphasized above, scientists identify (and define) natural kinds without any discourse about rigid designation across possible worlds. Instead, natural kinds and their

⁵³ To repeat Kripke's unsound argument: (1) Water is H₂O. (2) 'Water' and 'H₂O' are natural kind terms. (3) Any identity that holds between two natural kind terms is necessarily true. (4) Therefore, 'Water is H₂O' is necessarily true. (5) Therefore, we know empirically that 'Water is H₂O' is necessarily true. Our claim is that premise 3 is false since natural kind terms (as linguistic entities) do not 'pick out' items in the physical world. Also, even with the initial rigid designations of one concrete item with two proper names (e.g., Hesperus, Phosphorus) or a chemical kind with different natural kind terms, their identity is 'contingent' (in an ordinary sense of the term) pending the empirical observation and confirmation of the identity. We are under no obligation to adopt Kripke's possible worlds semantics and associated linguistic intuitions.

essential properties are identified by theoretic definitions by physical scientists and philosophers and others. The practical scientific research of developing a 'theoretical definition' better describes how entities have essential properties for the identification of a natural kind object in any possible world. Natural kind terms and proper names (as linguistic entities) don't refer to natural kind physical objects nor do they refer to particulars (anywhere).⁵⁴

Is Metaphysics the Science of the Possible?

Let us finish a critique of metaphysical 'reality' and 'necessity' with a summary of the metaphysics that we have been criticizing. E.J. Lowe (2011) sums up metaphysics:

Our task as metaphysicians is partly to envisage in a very general way, what sort of things there *could be* in the world, as its most fundamental level of organization or structure, and then develop arguments for or against the existence of things of this or that general sort-- for instance, for or against the existence of immaterial souls or abstract objects... Each science pursues a limited domain. But reality as a whole is unified and truth about one part of it cannot conflict with truth about another part. Only a discipline whose proper subject-matter is the fundamental structure of reality as a whole can have the authority to adjudicate whether the theories and findings of one empirical science are consistent with those of another.

Formal ontology properly conceived has as its central concern *ontological form*. And ontological form is quite different from logical form, or the kind of formality that characterizes a formal logistical system. The notion of ontological form is indissolubly tied to that of an *ontological category*, for in effect to characterize an entity's ontological form is to specify the ontological category to which it belongs. And, as I've already said; ontological categories themselves are to be differentiated in terms of the distinctive existence and identity conditions of their members. So, to specify an entity's ontological form is, centrally, to say what its existence and identity conditions are and thus to specify its *general essence*-- that aspect of its essence that it shares with all other entities belonging to the same category (p. 104).

⁵⁴ In the case of the electron, Bain and Norton (2001) describe in detail the historical correction and expansion of electron properties, as developed by scientists, and show that the list of stable properties has grown over time. Theodore Arabatzis in a book devoted to the concept of the electron, *Representing Electrons* (2006) says that the laws the electron was supposedly thought to obey during its initial representation (e.g., classical mechanics and electromagnetic theory) were gradually abandoned and new properties (e.g., quantum numbers) were attributed to it (p. 110). He states that researchers of the atom and the electron assigned different properties to it from distinct theoretical perspectives, but nevertheless, it is clear that they were researching the same thing. Despite differences between Lorentz's and Bohr's concept of the electron, there were significant similarities between the concepts (p. 241). Arabatzis states that the various descriptions of the electron did not throw doubts on its identity (p. 256).

Does metaphysics, as characterized above, and at the outset of this chapter, seem at all plausible? Do metaphysical theories have any relevance outside of metaphysics?

Summary & Conclusion

In this chapter, we have questioned whether 'identity,' 'necessity,' 'object,' and 'property' should be among the most fundamental concepts for answering questions about ontology.⁵⁵ We have challenged the idea that descriptive metaphysics should seek information about 'modal reality.'⁵⁶ We have relied upon conceptual analysis (social-scientific in spirit) to measure (i.e., theorize, model) intentional speaker reference in various epistemic situations (e.g., identity assertions, natural kind identifications). The epistemology of proper names was discussed in terms of speaker reference. The nature of essential properties for the theoretic definition of a natural kind was discussed. Metaphysical realism is false and 'metaphysical necessity' has dubious value.⁵⁷

⁵⁵ A 'property' (or 'quality') is defined as the traits (or features, attributes) that things have. For example, we might say that 'professional firefighters are courageous' because they are required to put their health at risk. Let us assume that this proposition is accepted as true. But can it be said that firefighters have the property of being 'courageous?' Is 'courage' a property that things have? It seems odd (and unintuitive) to say that certain people have the property of being 'courageous.' It seems that 'courage' is a group resemblance concept and that courageousness comes in degrees (or resemblance). Being courageous is a cluster of behaviors (e.g., self-giving, daring, and persistent). Courage is not a natural kind property that truly or falsely applies to certain extensions. That 'things' truly or falsely have properties, (e.g., moral properties, aesthetic properties, abstract structural properties) tends to support realist theories of metaphysics, meta-ethics, aesthetics, and mathematics.

⁵⁶ Instead of focusing upon intuitive answers to 'modal test examples' to explain metaphysical 'necessity,' we have investigated the primary senses of 'necessity.' The concepts of causal necessity, deductive necessity, and group resemblance conceptual necessity, all have explanatory value when answering interesting philosophical questions. The three senses of metaphysical necessity (i.e., counterfactuals, conceivability, possible worlds) on the contrary, have suspicious expert intuitions, are more complex, and support a questionable philosophical worldview.

⁵⁷ To summarize, I contend in this chapter that many metaphysical debates are pseudo-disputes, generated from *overly generic questions* about what *things* exist and *their identity* in a *neutral sense*. With a theory of definition and concepts we said: (1) some 'things' are natural kind things (e.g., water, knowledge), (2) some 'things' are group resemblance, where the identity of a thing or kind, depends upon our reportive definitions (with loose identity conditions) about what an object (i.e., extension) consists of, and (3) the extension of some 'things' is the result of fixed definiens stipulated identities (e.g., any person *x* whose height is over six feet, shall be labeled 'tall'). Some fixed definiens entities (e.g., 'limit,' 'derivative,' and 'analytic') require a researched explication of identity conditions, while other 'things' in mathematics are defined by stipulative recursion, or by a fixed definiens functional formula.